2

PROVISIONAL INTELLIGENCE REPORT

PLANT STUDY OF THE IRON AND STEEL INDUSTRY OF THE USSR: ECONOMIC REGIONS I AND II

CIA/RR PR-118
29 July 1955

CENTRAL INTELLIGENCE AGENCY
OFFICE OF RESEARCH AND REPORTS

~~S-E-C-R-E-T~~

NOT RELEASABLE TO
FOREIGN NATIONALS

PROVISIONAL INTELLIGENCE REPORT

PLANT STUDY OF THE IRON AND STEEL INDUSTRY OF THE USSR: ECONOMIC REGIONS I AND II

CIA/RR PR-118

(ORR Project 23.606)

NOTICE

The data and conclusions contained in this report do not necessarily represent the final position of ORR and should be regarded as provisional only and subject to revision. Comments and data which may be available to the user are solicited.

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

NOT RELEASABLE TO
FOREIGN NATIONALS

~~S-E-C-R-E-T~~

FOREWORD

This report is the last of a series of regional studies which have provided basic research data on the iron and steel industry in the USSR. This report includes plants in Economic Regions I and II which produce metallurgical coke, pig iron, steel ingots, steel castings, or other types of finished or semifinished steel. Economic Regions I and II have been combined because of their geographic proximity and because Region II has relatively insignificant production.

The primary intelligence value of this report lies in the basic evaluation of plant capacity of these regions as a contribution to the capabilities of the USSR in the production of steel and finished steel products. Regional production estimates of the Soviet iron and steel industry also serve as a check on Soviet statistics and provide information on the regional flow of iron and steelmaking materials and finished products within the USSR.

CONTENTS

Page

WARNING

This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

Approved For Release 1999/09/02 : CIA-RDP79-01093A000900120007-0

CIA/RR PR-118
(ORR Project 23.606)

S-E-C-R-E-T

PLANT STUDY OF THE IRON AND STEEL INDUSTRY OF THE USSR: ECONOMIC REGIONS I AND II*

Summary

Production of steel in Economic Regions I and II** in 1954 amounted to about 1.2 million metric tons,*** 3 percent of the total production of the USSR. Of this production, 91.5 percent was produced in Region I, with 78.3 percent of the total coming from 3 plants, all of which are located in the Leningrad Oblast: the Bolshevik Armament Plant No. 232, 15.2 percent; the Izhorsk Heavy Equipment Plant imeni Kuybyshev, 38.1 percent; and the Leningrad Heavy Machinery Plant No. 1 imeni Kirov, 25.0 percent.

Total finished steel output of the 2 regions was 830,900 tons, 2.67 percent of the production of the USSR in 1954. Rolled steel products constituted 77.2 percent of the production of finished steel, and the remainder was in the form of steel castings.

Because of the lack of coking coal and iron ore convenient to the steel producing and consuming centers, no coke or pig iron is produced in either region. Steel is produced from scrap and from cold pig iron shipped in from the Urals and the Ukraine. The higher cost implicit in this practice is somewhat offset by the relative abundance of scrap from the regional manufacturing industries.

Production of finished steel in Economic Regions I and II is inadequate to meet requirements (which include those of Leningrad's machinery and shipbuilding industries), and additional supplies are shipped in from the Ukraine, the Urals, and from areas as far away as West Siberia.

---

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 1 April 1955.

** The economic regions referred to in this report are those defined and numbered on CIA Map 12048, 9-51 (First Revision 7-52), USSR: Economic Regions.

*** Throughout this report tonnages are given in metric tons.

Future development of the iron and steel industry in Economic Regions I and II centers around plans laid in 1948 which were to provide a major integrated steel plant at Cherepovets, located approximately 400 kilometers east of Leningrad. These plans included the installation of coke ovens, of 2 blast furnaces with a capacity of 1.2 million tons of pig iron per year, of an open-hearth steel capacity of 2 million tons per year, and of rolling mills capable of producing 1.9 million tons of finished steel products per year. Iron ore from the Kola Peninsula and coking coal from the Pechora Basin were expected to provide the raw materials for this operation.

The status of this project, which would more than double the steel output of the region and would provide its only integrated plant, is not known. Since it has been under consideration for a number of years, however, and because of the increasing demand for steel products generated by the manufacturing industry in Region I, it is probable that some progress toward implementation has been made.

The production of steel in Economic Regions I and II of the USSR in 1954 is summarized in Table 1.

Table 1

Production of Steel in Economic Regions I and II of the USSR
1954

Thousand Metric Tons

Plant	Total Steel	Rolled Steel	Steel Castings	Total Finished Steel
Region I				
Leningrad Oblast				
Bolshevik Armament Plant No. 232	187.0	117.0	10.3	127.3
Izhorsk Heavy Equipment Plant imeni Kuybyshev	470.0	329.0	0	329.0

Table 1

Production of Steel in Economic Regions I and II of the USSR
1954
(Continued)

Thousand Metric Tons

Plant	Total Steel	Rolled Steel	Steel Castings	Total Finished Steel
Region I (Continued)				
Leningrad Oblast (Continued)				
Leningrad Heavy Machinery Plant No. 1 imeni Kirov	308.0	110.9	84.7	195.6
Leningrad Machine Building Plant imeni V.M. Molotov	10.0	0	5.5	5.5
Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov	8.0	0	4.5	4.5
Ekonomayzer Foundry and Machine Building Plant	14.6	0	8.0	8.0
Nevskiy Machine Building Plant imeni Lenin	79.0	0	43.5	43.5
Leningrad Metal Combine	0	33.0 a/*	0	33.0 a/
Leningrad Pipe Mill	0	90.0 a/	0	90.0 a/
Leningrad Steel Rolling, Wire, and Cable Plant imeni V.M. Molotov	0	100.0 a/	0	100.0 a/
Karelo-Finnish SSR				
Onega Machine Building Plant	24.0	8.6	6.6	15.2
Vyartsila Steel Plant	28.0	20.2	0	20.2
Vologda Oblast				
Cherepovets Metallurgical Plant	0	0	0	0
Total	1,128.6	585.7	163.1	748.8

* Footnote for Table 1 follows on p. 4.

Table 1

Production of Steel in Economic Regions I and II of the USSR
1954
(Continued)

Thousand Metric Tons

Plant	Total Steel	Rolled Steel	Steel Castings	Total Finished Steel
Region II				
Belorussian SSR				
Gomel' Sheet Rolling Mill	0	15.0	0	15.0
Minsk Motor Vehicle Plant	3.0	0	1.7	1.7
Mogilev Metallurgical Plant	0	15.0 a/	0	15.0 a/
Estonian SSR				
Ilmarine Machine Building Plant	5.0	0	2.8	2.8
Tallin Machine Building Factory	2.0	1.4	0	1.4
Latvian SSR				
Riga Railroad Car Works	34.1	0	18.8	18.8
Sarkana Metallurgical Plant	60.3	39.1	3.3	42.4
Total	104.4	55.5	26.6	82.1
Grand Total	1,233.0	641.2	189.7	830.9

a. The steel for these tonnages of rolled products was probably supplied by plants in the area, and the figures are therefore not included in the total production of the regions.

1. Bolshevik Armament Plant No. 232, formerly known as the Obukhovsk Armament Plant (IR 7014091).

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The plant site is in the southeast part of Leningrad on the west bank of the Neva River. Some distance to the north of the river is the Nevskiy Machine Building Plant imeni Lenin. 1/*

b. History and Development.

Before the 1917 revolution the plant was known as the Obukhovsk Steel Foundry. Initial operations at Obukhovsk started in about 1890. Although the plant was within German artillery range during the siege of Leningrad, operations never ceased. The estimated war damage was less than 20 percent. Reconstruction was rapid after the war, and a new power plant was built. The Bolshevik Armament Plant is an important producer of war materiel and will probably remain so in the immediate future. 2/

c. Raw Materials and Other Inputs.

Oil for open-hearth use arrives by rail. Pig iron is shipped in from south of Moscow. Most of the scrap requirements at the plant are filled from the Leningrad area. 3/

Immediately after the war, coal was received from Upper Silesia. At the present time, coal arrives daily at the plant and power house, but its source is not known. 4/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

* For serially numbered source references, see Appendix D.

f. Steelmaking Facilities.

The open-hearth shop at the Bolshevik plant has 4 oil-fired furnaces, each with a hearth area of approximately 24 square meters (sq m). The norm for production in 1947 was 4.8 tons of steel per sq m of hearth area per day. Estimated coefficients for 1952 and 1953 are 5.6 and 5.8, respectively. There are probably several 3.5-ton acid electric furnaces in operation at the plant used as the second step in the basic open-hearth acid electric duplex process. 5/ Production of steel at the Bolshevik Armament Plant No. 232 in 1953-54 is shown in the tabulation below.

Year	Number of Furnaces	Type	Hearth Area (Square Meters)	Coefficient	Operating Days per Year	Total Production (Thousand Metric Tons)
1953	4	Open-hearth	24.0	5.8	325	181.0
1954	4	Open-hearth	24.0	6.0 a/	325	187.0 b/

a. Coefficient increase is the result of the national open-hearth coefficient increase of about 3 percent in 1954.
b. 4 x 24.0 x 6.0 x 325 = 187.0.

Alloy steels are produced in this shop, but their type and quantity are unknown. Additions of nickel, tungsten, and manganese were made during the period from 1945 to 1949. About 90 percent of the steel is poured into ingots, and 10 percent is used for castings. Some forging ingots are cast in 50-ton sizes. Although exact open-hearth practices are not known, the shop is on a high scrap practice. The norm for heat time in 1948 was 9.5 hours, and this has occasionally been lowered to 6.5 hours. 6/

g. Finishing Facilities.

There is no blooming mill; the first stand of the rail-structural mill, however, may break down billet-size ingots for subsequent rolling. 7/

Large ingots in sizes from 20 tons to 50 tons are forged into gun barrels and other shapes. There are 4 oil-fired reheating furnaces, each capable of taking three 15- to 20-ton ingots; 9 large oil-fired furnaces, each capable of taking three 15- to 20-ton ingots; and 9 large oil-fired furnaces, each capable of handling two 50-ton ingots. The forge shop has 5 heavy steam hammers and 2 light ones. Also there is at least one and possibly two 1,000-ton forging presses. 8/

There are probably three rolling mills. The sizes are unknown, but the mills are a medium-size rail-structural mill, a plate mill, and a bar mill for alloy bars. 9/

h. Intraplant Services.

The plant is served by its own power station, which has an estimated capacity of 12,000 kilowatts (kw). The power house located within the plant area should not be confused with the large municipal station located just outside the plant, a station which has an estimated capacity of over 100,000 kw. 10/

Because the Bolshevik plant is an arms combine, it has more than the usual number of mechanical, electrical, and other auxiliary shops. 11/

i. Products and Production.

The principal end products of the Bolshevik plant are naval ordnance and related equipment. The steel mill produces carbon and alloy ingots, steel castings and forgings, channels, tees, carbon bar stock, alloy bar stock, plates, and sheets. 12/ Production of finished steel at the Bolshevik Armament Plant No. 232 in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
10.3 a/	117.0 b/	127.3

a. Based on a yield of 55 percent from steel poured to finished castings.
b. Based on a yield of 70 percent from ingots to finished rolled product.

j. Distribution.

Practically all end products go to users of armament material. The bulk of distribution is to naval installations in the Leningrad area. All finished steel produced is consumed in the Bolshevik plant. 13/

k. Plant Efficiency.

In 1951 the plant was awarded the Order of Lenin and the Order of the Red Banner for distinguished service. 14/

l. Administration.

The Bolshevik plant belongs to the Ministry of Armaments. 15/

m. Personnel.

From 5,000 to 6,000 workers, under the direction of Yegorekov, are employed in the entire plant. 16/

2. Izhorsk Heavy Equipment Plant imeni Kuybyshev, also referred to as the Kolpino Heavy Equipment Plant (IR 7023864).

a. Location.

59°45' N - 30°34' E, Kolpino, Leningrad Oblast, RSFSR. The Izhora River flows through the plant area. Kolpino is about 22 kilometers (km) southeast of Leningrad.

b. History and Development.

The Izhorsk factory originally began operations about 1803. Before 1917 it was under the Navy Department. During World War II, more than 60 percent of the installations at Izhorsk were destroyed. After the war, facilities were reactivated by the addition of reparations equipment. By 1949 the works was producing a considerable amount of steel and finished equipment although some units of the plant had not been rebuilt. The Izhorsk plant is one of the more important machine-building works in the USSR and is particularly noted for its production of tank equipment and armorplate for ships. 17/

c. Raw Materials and Other Inputs.

Large shipments of from 300 to 500 tons of pig iron are received daily by rail. The reserves in the pig iron storage areas were maintained at a 10,000-ton minimum in the period from 1947 to 1950. 18/

The feed and charge iron ore needed for open-hearth operations comes from deposits in the Karelo-Finnish SSR and from the Kola Peninsula. 19/

Until some new steelmaking furnaces came into operation about 1950, large quantities of cold ingots were received for the rolling mills. The ingots were of 2 weights, generally 3 tons and 25 tons, and -- up to 1950 -- supplied 30 to 40 percent of the rolling mill requirements. 20/

Large amounts of scrap are received from plant operations and from industrial installations in the Leningrad area. Barge loads of scrap reach the plant from Leningrad by way of the Neva and Izhora Rivers. 21/

Other raw materials received in 1950 were open-hearth fuel oil, manganese ore, ferrosilicon, nickel, and ferrochrome. 22/

Fuel inputs in the period from 1945 to 1949 were received daily in the summer and fall from the Pechora Basin and from other sources. At this time the shipments averaged from 10 to 12 coal cars. Fuel received was approximately 50 percent anthracite or bituminous, 25 percent brown coal, and 25 percent peat. The coal storage field is adjacent to the power house. The receipt of coal varied seasonally, almost none being received in the winter. Stockpiling of coal was sufficient for the winter season. 23/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

Before World War II, Izhorsk Heavy Equipment Plant in the Kuybyshev had 5 open-hearth furnaces in 1 shop on the east bank of the Izhora and 4 more in Shop No. 10 on the west bank. During the siege of Leningrad the shop on the east bank was heavily damaged. 24/

Restoration and immediate postwar production were concentrated in Shop No. 10 and its foundry adjunct, Shop No. 25. Until 1949, Shop No. 10 supplied about 70 percent of the rolling mill requirements, the rest being furnished by outside sources. About 1946 there were four 50-ton open-hearth furnaces and one 80-ton furnace in the shop; another 80-ton furnace was added in 1949. It is believed that one 50-ton open-hearth furnace was rebuilt to 80-ton capacity in the period from 1945 to 1950. By 1952, Shop No. 10 had 3 oil-fired 50-ton furnaces and 3 oil-fired 80-ton furnaces as well as two 150-ton German pit cranes. 25/

In 1949, two furnaces in the damaged shop on the east bank of the river were being reconstructed. Before they were damaged these furnaces had hearth areas of 21 sq m. In the absence of any definitive information the 1952 position of this shop is estimated to have been 4 oil-fired open-hearth furnaces of 21 sq m and 40-ton capacity. 26/

The foundry adjacent to Shop No. 10 has at least one 10-ton electric furnace. No coefficients have been given for steel production, so output has been based on 2.5 heats per furnace per day. 27/ Production of steel at the Izhorsk Heavy Equipment Plant imeni Kuybyshev in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Heats per Day	Operating Days per Year	Total Production (Thousand Metric Tons)
3	Open-hearth	80	2.5	325	201 a/
3	Open-hearth	50	2.5	325	125 a/
4	Open-hearth	40	2.5	325	134 a/
1	Electric	10			10
	Total Production				470 a/

a. The national open-hearth coefficient of utilization increased from 6.50 in 1953 to 6.69 in 1954. This 3-percent increase is applied to 1953 production figures to show 1954 production.

g. Finishing Facilities.

There are two blooming mills at Izhorsk located in Shops Nos. 11 and 12.

By far the more important bloomer is the steam-driven 1,200-millimeter (mm) universal mill in Shop No. 11. Evacuated eastward during the war, it was returned and resumed production in early 1947. All of the 4 to 6 soaking pits serving the 1,200-mm mill are oil fired and are large enough to handle 40-ton ingots. These pits receive cold steel from other plants as well as hot ingots from Shop No. 10. Forty-ton ingots were bloomed here at a rate of about five per week. Twenty-ton and smaller ingots were rolled the rest of the time. Mill time on the 40-ton blooms was reportedly 40 minutes, and two 150-ton cranes service the mill. 28/

The other mill is a smaller steam-driven 900-mm bloomer in Shop No. 12. Located in this shop are other finishing facilities with which the 900-mm bloomer is integrated. 29/

The 1,200-mm blooming mill discussed above is also a finishing mill in that it produces very heavy armorplate. This installation is the principal heavy rolled armorplate producer in the USSR. Although the 1,200-mm mill has a high capacity for blooming, the full capacity is never realized, because the rolling of armorplate very markedly lowers production. 30/

In addition to housing the 900-mm bloomer as mentioned above, Shop No. 12 also has a 750-mm steam-driven billet mill which produces billets for the bar mills. During 1947 and 1948, cross sections of 20 centimeters (cm) by 20 cm were produced at a rate of 115 tons per shift. 31/ The estimated yearly capacity is 110,000 tons.

Between 1947 and 1949, a 1,600-mm or wider steam-driven plate mill located in Shop No. 12 produced an average of 120 plates per shift. At that time, 50 percent of the plate was shipped out of the plant, and the rest went to fabricating facilities in other parts of the mill. Slabs for the 1,600-mm mill come from the 900-mm bloomer. 32/

There are 2 bar mills in Shop No. 12. One mill is a 2-high, 3-stand, 530-mm heavy bar mill, and the other is a 4-stand, 3-high, 350-mm bar mill. In addition to the production of bar stock, one of the principal uses of these two mills is to produce rounds for the seamless pipe mills. 33/

Before World War II the pipe-making shop at Izhorsk had 2 Stiefel disk-piercing mills for pipe sizes up to 114 mm and 2 Pilger mills for sizes from 200 mm to 400 mm and possibly up to 535 mm. 34/

In 1954 the pipe mill is believed to have had two Mannesman-type seamless pipe mills producing stainless, alloy, and carbon steel pipe. 35/

In addition to rolling facilities, there are a number of forging presses -- including the largest in Leningrad, a 5,000-ton press. 36/

h. Intraplant Services.

Before 1949, power was received at the main transformer station from outside the plant. At that time, however, at least part of the newly constructed thermal power plant came into operation. It is estimated that by 1954 the Izhorsk plant was entirely self-sufficient for its power needs and now may supply Kolpino with some power. It is believed that the former transformer stations would be used as they were before the installation of the new power house. At that time, 6,000 volts (v) of 3-phase alternating-current (AC) power came from outside into the main transformer bank. Here it was distributed by underground cable to 7 substations, where it was stepped down to 380 v for plant use. Each substation had 4 oil-cooled 5,000-kw 6,000/380-v transformers. The capacity of the new power station is unknown. 37/

Steam for heat and power is supplied from several boiler houses at the mill. 38/

A cinder block factory located at the plant makes building material from open-hearth slag. 39/

The plant has an extremely large number of machine and fabricating shops which make the plant independent of outside help for a great number of maintenance needs.

i. Products and Production.

Steel mill products produced at Izhorsk are open-hearth and electric furnace steel, carbon steels, some alloy steel -- including a small amount of stainless, blooms, billets, bars, heavy armorplate, plate, pipe rounds, seamless pipe, and forgings. Production of total steel and finished steel at the Izhorsk Heavy Equipment Plant imeni Kuybyshev in 1953-54 is shown in the tabulation below.

Thousand Metric Tons

Year	Total Steel	Steel Castings	Rolled Steel	Total Finished Steel
1953	457.0	0	320.0 a/	320.0
1954	457.0 b/	0	320.0 b/	329.0

a. Based on a yield of 70 percent from ingot to finished product.
b. Based on increase of 3 percent in the national open-hearth coefficient in 1954.

j. Distribution.

A great number of finished products are sent to the Leningrad shipyards. Most steel mill products produced are consumed at Izhorsk, but some are shipped to unknown destinations.

k. Plant Efficiency.

There is no recent information available on plant efficiency, but it is known that the plant produced overplan in 1948. In 1947 the mill was criticized for its inefficiency. 40/ With the production of sufficient ingot tonnage to satisfy rolling mill requirements, efficiency of operation increased and fuel costs decreased.

l. Administration.

The Izhorsk plant is one of several steel mills attached to the Ministry of Shipbuilding. 41/

m. Personnel.

An estimated 20,000 workers are employed at Izhorsk. The large number of employees is accounted for by the great number of auxiliary and finishing operations.

The name of the director is unknown. 42/

n. Locational Characteristic.

Because the plant is located on the Izhora and Neva Rivers, shipments to the Leningrad shipyards are made by low-cost barge transportation.

3. Leningrad Heavy Machinery Plant No. 1 imeni Kirov, formerly known as Krasnyy Putilovets (IR 7008143).

a. Location.

59°53' N - 30°15' E, Leningrad, Kirovskiy Rayon, Leningrad Oblast, RSFSR. The plant is located in a heavily populated area in the southwest part of Leningrad, in the district of Alekseyevka, and approximately 2 miles south of the south fork of the mouth of the Bol'shaya Neva River. A railroad line which services the harbor area passes to the north of the plant. 43/

b. History and Development.

The Leningrad Heavy Machinery Plant which operates in connection with the Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov is one of the largest industrial installations in the Leningrad area. It produces a wide range of products, including steel, iron and steel castings, tractors, tanks, self-propelled guns, turbines, instruments, ammunition, and diesel engines. The plant celebrated its 150th anniversary in 1951. Until the 1870's the plant was a small foundry, but in approximately 1873 the foundry was purchased by N. Putilov, who began to expand facilities. A structural mill was installed, and in the early 1900's the manufacture of machinery and artillery weapons began. During the period from 1914 to 1918 the plant built cruisers and destroyers for the Soviet Fleet. Shortly after the revolution the plant was nationalized, and in 1924 the production of tractors began. The plant was given its present title in December 1934. With the approach of the German Army in World War II, three-quarters of the machinery and workers were moved to Sverdlovsk, and no production was realized during the siege of Leningrad, from December 1941 to March 1942. In the spring of 1942 the equipment which remained in the plant was used for the production of Soviet Army tanks.

The Leningrad Heavy Machinery Plant No. 1 has always led in the development of alloy steels and their applications in the machine-building industry. 44/

c. Raw Material and Other Inputs.

Iron ore is reported to come from the Ural Mountains, steel from the Ukraine, and scrap (in 1949) from the Soviet Zone of Germany. All shipments are by rail. 45/

Coal is received by rail from the Donets Basin. One source reports that in 1945 considerable amounts of coal were shipped in from Silesia. 46/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

The Leningrad Heavy Machinery Plant No. 1 had 6 open-hearth furnaces and 3 electric furnaces in operation before the beginning of World War II. Considerable damage was sustained from bombing during the siege of Leningrad in late 1941 and early 1942, but shortly after the Germans left the area, reconstruction of the open-hearth shop began. By November 1944 it was announced that 3 open-hearth furnaces were back in operation, and at the end of November 1947, No. 5 was in production. It has been assumed that shortly after that time, all six open-hearth furnaces were back in operation. In March 1950 it was announced that the open-hearth coefficient norm was 5.85 tons for each sq m of hearth area. In 1954 the coefficient is assumed to have been 6.1 tons per sq m. On this basis an estimate of steel production has been made. 47/ Production of steel at the Leningrad Heavy Machinery Plant No. 1 imeni Kirov in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Hearth Area or Capacity	Coefficient	Operating Days per Year	Total Production (Thousand Metric Tons)
6 a/	Open-hearth	25.4 sq m a/	6.0 b/	325	298.0
3	Electric	10 metric tons		325	10.0
	Total production				308.0

a. It is assumed that the 3 small open-hearth furnaces were rebuilt to the 25.4-sq m size.
b. The coefficient is based on the national open-hearth coefficient in 1954.

In March 1954 it was announced in the press that the improvement of the open-hearth shop was under way, that the modernization of the furnaces would enable the workers to increase output, and that the first rebuilt furnace had started operation on 30 March. 48/

g. Finishing Facilities.

Before World War II the plant had a 2-high, single-stand, 800-mm reversible blooming mill. In May 1947 the "800" blooming mill rolled 111.7 tons of metal per shift instead of the 65 tons prescribed by the norm, breaking all previous blooming records for the mill. 49/

In 1941, finishing facilities at the Leningrad Heavy Machinery Plant No. 1 consisted of the following 50/:

One 685-mm heavy bar mill, which consisted of one 760 mm roughing stand and 2 finishing stands with roll diameters of 810 mm and 685 mm.

One 500-mm medium bar mill built in 1931.

One 360-mm small 3-high, 3-stand bar mill.

One 292-mm small 3-high bar mill consisting of four 460-mm roughing stands and four 292-mm finishing stands.

One 240-mm small 3-high rod mill consisting of one 380-mm roughing stand and four 260/240-mm finishing stands.

One 980-mm 2-high, single-stand, reversible plate mill.

One 600-mm 2-high, single-stand sheet mill.

A steel foundry.

Two iron foundries.

Two forge shops.

One press shop.

The present status of rolling facilities at the plant is not known. Prisoner-of-war reports were inconclusive and confusing. In November 1944 it was announced that all rolling mills were back in production, and several press articles mentioned that the "700," "370," and "240" were in operation. It is assumed, therefore, that present finishing facilities, perhaps with some modernization, are the same as those that were in operation before World War II. 51/

h. Intraplant Services.

Electric power is received by high-tension wire from the city of Leningrad. There is a transformer station at the plant. 52/

i. Products and Production.

In addition to rolled, cast, and forged steel products, the plant produces tractors, tanks, self-propelled guns, turbines, and diesel engines.

The metallurgists at the Leningrad Heavy Machinery Plant No. 1 have been pioneers in the field of alloy steels. They have played an important role in the development of straight chrome, chrome-manganese, silicon-chrome, silicon-manganese, tungsten, and low-alloy construction steels. 53/ Production of finished steel at the Leningrad Heavy Machinery Plant No. 1 imeni Kirov in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
84.7 a/	110.9 b/	195.6

a. Based on a yield of 55 percent of steel poured to finished castings.
b. Based on a yield of 72 percent of ingot weight to rolled products.

j. Distribution of Products.

The larger part of the production of steel, as castings and rolled products, is used within the plant. Some products, however, have been shipped to other consumers in the USSR.

In March 1949 it was announced that the Leningrad Heavy Machinery Plant No. 1 was shipping bar steel to Estonia. In March 1952 it was announced that the Moscow Tool and Instrument Plant was receiving fabricated steel from the same plant. 54/

k. Administration.

In 1949 the plant was reported to be under the administration of the Ministry of Transport Machinery Industry. 55/

1. Personnel.

The number of persons employed in the production of steel and steel products is not known. The plant works three 8-hour shifts a day.

In June 1952 it was reported that N. Smirnov was the plant director. 56/

4. Leningrad Machine Building Plant imeni V.M. Molotov, also known as Glavarmalit (IR 7011111).

a. Location.

59°53' N - 30°15' E, Leningrad, Kirovskiy Rayon, Leningrad Oblast, RSFSR. The plant is located in the southwest part of Leningrad. 57/

b. History and Development.

The Leningrad Machine Building Plant, established in 1887, is a small installation producing machine parts and machines. Before the siege of Leningrad, a large part of the machinery in the plant was removed and placed in storage. Some buildings suffered damage, but by mid-1946 the plant was back in operation. 58/

c. Raw Materials and Other Inputs.

Steel scrap, iron scrap, pig iron, and coke for the steel-melting and cupola furnaces were received by rail from East Germany in 1950. 59/ Present sources are unknown.

d. Coking Facilities.

None.

e. Ironmaking Facilities.

One source claimed there was an iron foundry in the plant containing several small cupola furnaces. There is no confirmation. 60/

f. Steelmaking Facilities.

There are 4 electric furnaces in the plant which were installed in 1934-35. There are 3 VEO (a trademark) furnaces each with a capacity of 3 tons and a Detroit-type furnace with a capacity of 1.5 tons. In 1944 the rated capacity of these furnaces was 10,000 tons per year. 61/ Production of steel at the Leningrad Machine Building Plant imeni V.M. Molotov in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Operating Days per Year	Total Production (Thousand Metric Tons)
3	Electric	3.0	325	
1	Electric	1.5	325	10.0

g. Finishing Facilities.

In the plant there is a small steel foundry, with the usual finishing facilities for castings. 62/

h. Intraplant Services.

No information available.

i. Products and Production.

The plant produces small steel castings which are used in the manufacture of machinery. Production of finished steel at the Leningrad Machine Building Plant imeni V.M. Molotov in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
5.5 a/	0	5.5

a. Based on a yield of 55 percent from steel poured to finished castings.

j. Personnel.

The number of employees at the plant is not known.

In November 1948 the chief engineer was Ivan Ivanovitch Fedorlov, assisted by Micha Grishen. 63/

5. Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov, also known as the Kirov Heavy Machinery Factory and the Kirov Crane Factory (IR 7006147).

a. Location.

59°53' N - 30°15' E, Leningrad, Kirovskiy Rayon, Leningrad Oblast, RSFSR. The plant lies in a thickly populated section in the southwest part of Leningrad, between the Baltic and the Warsaw railroad stations. The Obvodnyy Canal is just north of the plant site. A railroad spur line enters the southeast corner of the plant and branches out into the plant area. 64/

b. History and Development.

The Leningrad Hoist and Conveyor Equipment Plant is operated in connection with the Leningrad Heavy Machinery Plant No. 1, which is a short distance from it. The plant was built in the 1890's and operated

until after World War I. Several sources reported that during World War II the installation lay idle until after the siege of Leningrad, when some tanks were produced. In 1945 the production of tanks ceased, and efforts were turned to the manufacture of cranes, bridges, scaffolding, railroad car wheels, cog wheels, and children's bicycles. 65/

c. Raw Materials and Other Inputs.

In late 1947 there were large stores of U, L, T, and I profiles, special cutting steels (marked "Boegler-Stahl"), and Vidia steel, all of which had been received from East Germany.

At the present time, pig iron, steel ingots, limestone, sand, and semifinished steel products are shipped into the plant by rail from an unknown source.

In September 1950 it was announced that Zaporozh'ye Steel Combine had received an order for steel sheet for the Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov. 66/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

There are no blast furnaces. A small foundry, equipped with a small coke-fired cupola, is used for the production or iron castings. 67/

f. Steelmaking Facilities.

The steel foundry contains two small electric furnaces for the making of steel for castings. One has a capacity of 3 tons and the other of 5 tons. Production for 1953 is estimated at 8,000 tons of steel. 68/

In January 1953 it was announced that the steel smelting shop of the plant was applying a new steelmaking technique in the electric furnaces. By shortening the time necessary for removing the slag,

it reduced heating time to 15 or 20 percent of the former time, and by using a new type of refractories, it increased the repair interval from 67 or 70 heats to 200 heats. 69/ Production of steel at the Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Electric	3.0		
1	Electric	5.0	325	8.0

g. Finishing Facilities.

The plant has the usual facilities for the cleaning and finishing of iron and steel castings.

h. Intraplant Services.

From the Leningrad Municipal Power Plant, 6,000-v electricity is transmitted to a station containing 4 transformers, which step the voltage down to 220 v. 70/

i. Products and Production.

The plant produces iron and steel castings which are used in the production of cranes, bridges, machine parts, wheels, and children's bicycles. Production of finished steel at the Leningrad Hoist and Conveyor Equipment Plant imeni S.M. Kirov in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
4.5 a/	0	4.5

a. Based on a yield of 55 percent of steel poured to finished castings.

j. Distribution of Products.

All iron and steel castings are used within the plant.

k. Administration.

It is believed that the plant operates under the Ministry of Transport Machinery Industry. In August 1952, however, a press release listed it as belonging to the Ministry of Heavy Machinery Construction. 71/

l. Plant Efficiency.

In the spring of 1949, one source reported that at least 50 percent of the foundry products was defective because of blowholes and blisters formed in casting. 72/

m. Personnel.

Estimates of the number of people employed at the plant vary from 1,000 to 4,000. Two shifts, 6 days a week are worked in all sections of the plant except in the foundries, which work 3 shifts, 7 days a week. 73/

In November 1950 the director of the plant was S.I. Moroziv. 74/

6. Ekonomayzer Foundry and Machine Building Plant (IR 7006195).

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The plant is located on the west bank of the Neva River, Volodarskiy Rayon. 75/

b. History and Development.

The Ekonomayzer Foundry and Machine Building Plant, established in 1842, is an important producer of electrical, agricultural, and mining machinery. There are 2 foundries in the plant, 1 for iron and 1 for steel castings. In 1946 it was announced that the plant would produce the complete cycle of steel products, that coking coal would come from the Pechora coal fields, and that iron ore would be shipped down to Leningrad from the Kola Peninsula. There is no further information on the implementation of these plans, and it is believed that the scheme has been abandoned. Steel produced in the small Bessemer converters is used in the steel foundry. 76/

c. Ironmaking Facilities.

There are an unknown number of cupolas which furnish iron for castings.

d. Steelmaking Facilities.

The plant has two 1.5-ton Bessemer converters, which have the capacity to produce approximately 30,000 tons of steel per year. It is doubtful that at the present time more than 15,000 tons of steel are being produced annually. 77/ Production of steel at the Ekonomayzer Foundry and Machine Building Plant in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Operating Days per Year	Total Production (Thousand Metric Tons)
2	Bessemer	1.5	325	14.6

e. Finishing Facilities.

The plant has a steel foundry and an iron foundry. In March 1951 it was announced that more than a year earlier the Orgtyazhmash Institute had helped the Ekonomayzer Foundry and Machine Building Plant work out the technology and draw up plans for the establishment of a precision casting section. The director of the plant, however, did not consider the new section of sufficient importance to make room for it. 78/

f. Products and Production.

Iron and steel castings produced are used in the machinery manufactured by the plant.

In 1941, 6,000 tons of iron castings and 750 tons of steel castings were produced.

In 1954, production is estimated at approximately 10,000 tons of iron castings and 8,000 tons of steel castings. 79/ Production of finished steel at the Ekonomayzer Foundry and Machine Building Plant in 1954 is shown in the tabulation below.

Thousand Metric Tons

Steel Castings	Rolled Steel	Total Finished Steel
8.0 a/	0	8.0

a. Based on a yield of 55 percent of steel poured to finished castings.

g. Distribution of Products.

Iron and steel castings are used in the plant in the production of finished machinery.

h. Plant Efficiency.

In February 1952 it was announced that the foundry, by changing to chill castings in the making of bearings for turbine pumps, would save 20 tons of brass per year. A new method of making rings for the pumps would reduce by 80 percent the waste in forging. A saving of 120 kilograms (kg) of alloy steel per machine would also be made. 80/

i. Personnel.

In 1941 the plant employed approximately 1,000 workers. In 1949 the plant director was Arakcheyev. 81/

7. Nevskiy Machine Building Plant imeni Lenin (IR 7007332).

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The plant site is on the west bank of the Neva River in the southeast part of the city.

b. History and Development.

The Nevskiy Machine Building Plant has been important since its founding in 1861. In 1894 the plant was known as the Semyannikovskiy Plant. The steelmaking section, an auxiliary to the plant, was constructed about 1930. About 5 percent of the works was damaged in World War II. The Nevskiy plant is one of the most important producers of steel mill equipment, gas turbines, turboblowers, generators, compressors, exhausters, and gas-driven blowers in the USSR. The first gas turbine produced in the USSR left the plant in September 1947. The works has performed extensive tests in the development of superior heat-resistant steels for turbine parts. The Nevskiy Machine Building Plant will continue to be an important cog in the machine-building industry of the USSR. 82/

c. Raw Materials and Other Inputs.

Plant requirements for iron ore are very small and could probably be supplied by deposits in the Karelo-Finnish SSR. The large amounts of scrap required are supplied from Leningrad and vicinity. Pig iron has come from the Urals and the Ukraine. The

source of fuel oil (mazut) shipments to the plant is not known. Refractories are not produced at the Nevskiy Machine Building Plant and must be shipped in. 83/

Coal and coke are shipped to the Nevskiy plant from the Ukraine. Peat is obtained locally. 84/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

Steelmaking operations at the Nevskiy Machine Building Plant are carried out in Shop No. 22, the steel-casting foundry. Equipment consists of three 30-ton oil-fired open-hearth furnaces and three 3-ton electric-arc furnaces. Except for one 50-ton ladle crane, all cranes in the steel foundry are 30-tons or smaller. Furnaces are tapped into 30-ton ladles. 85/

In 1936 the hearth areas of the 3 open-hearth furnaces were 11.0 sq m, 11.5 sq m, and 12.2 sq m, a total of 34.7 sq m. The coefficient of utilization in 1952 was 6.0, and it is estimated that it was the same for 1953. 86/ Production of steel at the Nevskiy Machine Building Plant imeni Lenin in 1953 and 1954 is shown in the tabulation* below.

A small but significant quantity of alloy steels are cast. Most of these alloy castings are of heat-resistant steel. In conjunction with metallurgical research centers, considerable research at the Nevskiy Machine Building Plant has been undertaken in the development of turbine buckets and blades. 87/

* Tabulation follows on p. 30.

Year	Number of Furnaces	Type	Hearth Area or Capacity	Coefficient	Operating Days per Year	Total Production (Thousand Metric Tons)
1953	3	Open-hearth	34.7 sq m (total)	6.0	325	67.6 b/
	3	Electric	3 metric tons			9.0
Total production						76.6
1954	3	Open-hearth	34.7 sq m (total)	6.2 a/	325	70.0 c/
	3	Electric	3 metric tons			9.0
Total Production						79.0

a. Increase based on the national open-hearth coefficient in 1954.
b. 3 x 34.7 x 6.0 x 325 = 67.6.
c. 3 x 34.7 x 6.2 x 325 = 70.0.

g. Finishing Facilities.

There are no rolling facilities at the plant. The forge department is equipped with two drop hammers where some semifinished parts for turbines are drop-forged. The finishing department of the steel foundry has the usual equipment. 88/

h. Intraplant Services.

The Nevskiy Machine Building Plant has its own power plant of about 10,000-kw capacity. 89/

Because the works has extensive machine-building facilities, there is little trouble in maintaining facilities in good operating condition.

i. Products and Production.

In addition to the manufactured items produced the steelmaking section produces alloy and carbon steel by open-hearth and electric furnace processes for castings, ingots, and forgings. 90/ Production of finished steel at the Nevskiy Machine Building Plant imeni Lenin in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
43.5 a/	0	43.5

a. Based on a yield of 55 percent from steel to finished steel castings and forgings.

j. Distribution.

Most of the steel produced is consumed in manufacturing at the Nevskiy plant. A small quantity of ingots, castings, and forgings are shipped to other plants in Leningrad. 91/

k. Plant Efficiency.

In 1952 and 1953 the steelmaking department fulfilled its norm for castings and forgings. 92/

l. Administration.

The Nevskiy Machine Building Plant is subordinate to the Ministry of Heavy Machine Building. 93/

m. Personnel.

The number of workers is not known but probably exceeds 10,000 -- many of the workers are concerned with fabricating and manufacturing. 94/

In 1953 the director of the plant was N. Tishii.

8. Leningrad Metal Combine, also known as Metallokombinat (IR 0031143).

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The combine is located in the southeast part of Leningrad, approximately 100 to 200 miles northeast of the double-track railroad line from Leningrad to Kolpino. 95/

b. History and Development.

The Leningrad Metal Combine, the principal supplier of sheet steel roofing materials for the Leningrad area, was built in the early 1920's. Some damage was sustained during World War II, but the plant was again in operation early in 1946. In March 1950 it was announced in the Leningrad press that the complete reconstruction of the installation was started in the fall of 1949. Scheduled plans provided for the enlargement of the rolling mill and galvanizing shop, the installation of new furnaces, and the modernization of technical processes. The new sheet mill was in operation in late 1951. 96/

c. Raw Materials and Other Inputs.

In May 1947, steel sheet bars and zinc ingots were being received by rail from an unknown source. 97/

d. Coking Facilities.

None.

e. Steelmaking Facilities.

None.

f. Finishing Facilities.

In 1947-48, the rolling mill consisted of 4 small sheet mills, 4 oil-fired heating furnaces, and 2 hand-operated cranes.

Approximately 10 percent of the sheet steel is galvanized in the galvanizing shop. It is later fabricated into such items as pails and tubs. 98/

Expansion of the finishing facilities of the combine began in the autumn of 1949. In early 1950 the pit was dug and the foundations were laid for a new sheet mill. Rolling mill equipment was being manufactured by the Nevskiy Machine Building Plant in Leningrad, which was also constructing an annealing furnace for the combine. Other plants were manufacturing plate-straightening machines, and additional zinc plating units were being assembled. In February 1952 it was announced that the new sheet mill was in operation and that it had doubled the production of roofing sheet at the plant. In November 1952 it was announced that the new sheet mill had the capacity to produce 5 tons of sheet steel per hour and that in October the plant as a whole had produced 2,790 tons of sheet steel. 99/

It is estimated that in 1953 production of sheet steel was approximately 33,000 tons.

g. Intraplant Services.

Electric power is received from the Leningrad Municipal Power Plant. There is a transformer plant within the plant area.

A boiler house contains three coal- and coke-fired boilers. 100/

h. Products and Production.

The plant produces sheet steel for roofing and domestic goods, such as buckets, tubs, shovels, and spades. 101/ Production of sheet steel in 1953 is estimated at approximately 33,000 tons. Production of finished steel at the Leningrad Metal Combine in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
0	33.0	33.0

i. Distribution of Products.

In April 1950 it was announced that the plant was the main supplier of roofing iron for the city of Leningrad. 102/

j. Personnel.

The Leningrad Metal Combine employs a total of approximately 300 people. Approximately 185 people work in the rolling mills. Three 8-hour shifts are worked.

The plant director in 1954 was Karakhanov. 103/

9. Leningrad Pipe Mill, also called Krasnaya Truba Pipe Mill (IR 7011106).

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The plant is in Volodarskiy Rayon, south and adjacent to the Sortirovochnaya railroad station, and is approximately 500 miles west of the Neva River. 104/

b. History and Development.

The Leningrad Pipe Mill was established in the late 1890's. In 1936 it was announced that total investments in the plant would be 3.9 million rubles, of which 1.1 million rubles had been invested up to 1 January 1936. In 1936, 900,000 rubles were to be spent. During World War II, only one of the pipe mills was operated; the rest of the equipment was dismantled and moved out of the area. In 1945 the mill was in a state of disrepair and had to be completely renovated, but in

1947 it was back in full operation. Although some modernization took place during the reconstruction period, it is not believed that any new installations were added to expand facilities. 105/

c. Raw Materials and Other Inputs.

In 1946, coal from the Upper Silesian Valley in Poland was shipped into the plant by rail. It was claimed that approximately 60 tons of coal were consumed per day in the annealing ovens. 106/

Skelp is received by rail from an unknown rolling mill at a rate of 120 tons daily. The source is probably in the Leningrad area. Zinc, in bars, is supplied by an unknown source. Steel bars, 1.25 meters by 10 cm square, are received from the Leningrad Heavy Machinery Plant No. 1. Steel plates are received from the Leningrad Metal Combine in Leningrad.

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

None.

g. Finishing Facilities.

In 1941 the Leningrad Pipe Mill had two pipe shops -- the old shop was built in the 1890's and the new shop in the 1920's. The following installations were in the plant:

No. 1 Pipe Welding Installation, for the production of 1-inch butt-welded pipe.

No. 2 Pipe Welding Installation, for the production of 1.5-inch butt-welded pipe.

No. 4 Pipe Welding Installation, for the production of 0.75-inch butt-welded pipe.

No. 5 Pipe Welding Installation, for the production of 0.75-inch butt-welded pipe.

It was reported that these installations had the capacity to produce 60,000 tons of butt-welded pipe a year. 107/

At the present time, the old shop contains two 7-meter-by-3.5-meter reheating furnaces, one of which is used for heating skelp and the other for heating sheet steel for boiler plate.

The new shop contains one large reneating furnace for skelp. The forge shop produces connecting collars for pipe and contains 4 oil-heated furnaces and 2 pneumatic hammers. The pipe threading shop contains 2 new German-made thread-cutting machines, each equipped with 4 spindles and 3 machines for removing burrs. The galvanizing shop contains 1 galvanizing bath, 2 circular saws, and 2 thread-cuting machines. 108/

In November 1949 it was announced that the plant had introduced a straight-line operation in the galvanizing shop, with the result that machinery productivity had been increased and the consumption of zinc had been reduced, both resulting in higher production. 109/

h. Intraplant Services.

In 1946, electric power was received from the city of Ieningrad. A steam power unit was available for emergencies. 110/

i. Products and Production.

All sizes of butt-welded pipe up to 1.5 inches in diameter and boiler pipe are produced. Iron bedsteads are made from the rejected pipe.

In November 1947 it was announced in the press that all kinds of pipes and tubes of alloyed steel used in the aircraft and automotive industries, capillary tubes, and special tubes used in the manufacture of aircraft instruments are produced. Thick-walled pipe also is rolled, and since 1932 the plant has produced molybdenum and stainless steel pipe. 111/

With only 1 capacity figure available, 60,000 tons of butt-welded pipe and 12,000 tons of boiler pipe in 1941, little information is available on which to base a production estimate for 1954. Estimated production of the Leningrad Pipe Mill and the production of finished steel at the Leningrad Pipe Mill in 1954 are shown in the tabulations below.

Product	Metric Tons
Butt-welded pipe	60,000 to 75,000
Boiler pipe	12,000 to 15,000 112/

Thousand Metric Tons	
Rolled Steel	Total Finished Steel
90.0	90.0

j. Distribution of Products.

No firm information is available, but several prisoners of war reported that finished pipe was taken away by truck, which is indicative of consumption in the Leningrad area. 113/

k. Administration.

The plant is probably under the direction of the Ministry of Ferrous Metallurgy.

l. Personnel.

Approximately 350 to 400 workers are employed in the Leningrad Pipe Mill. Three shifts per day are worked. 114/

In October 1949 the mill was under the direction of Ryzhikov, but in June 1952 it was mentioned in the press that the director was Zhuchkov. 115/

10. Leningrad Steel Rolling, Wire, and Cable Plant imeni V.M. Molotov, also known as Krasnyy Gvozdil'shchik (Red Nail Worker) and Vasilye Island Wire and Nail Plant (IR 7006862). 116/

a. Location.

59°53' N - 30°15' E, Leningrad, Leningrad Oblast, RSFSR. The plant is located on the west bank of the Neva River. 117/

b. History and Development.

The Leningrad Steel Rolling, Wire, and Cable Plant, one of the largest producers of wire and cable in the USSR, has been in operation since 1874. Only one building was bombed out during World War II, and reconstruction was completed by the end of 1946. 118/

c. Raw Materials and Other Inputs.

Ingots and blooms are shipped into the plant by rail from steel plants in the Urals. 119/

Coal is shipped in by rail from the Donets Basin. 120/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

None.

f. Steelmaking Facilities.

None.

g. Finishing Facilities.

In 1942, rolling mill equipment at the plant consisted of the following:

One single-stand, 3-high, 515-mm bar mill, which was placed in operation in 1930.

Several rod mills, each consisting of 4 intermediate 325-mm stands, 8 small 325-mm stands, and nine 245-mm finishing stands, which were put into operation in 1938.

Thirteen preheating furnaces.

In 1942 it was planned to add 7 cold-rolling mills and 1 Davy-United rolling mill. 121/

In 1947 a sheet mill, consisting of 3 mill trains of Soviet design, was in operation. Steel sheets averaged 4 meters by 2 meters and were 8 mm thick. 122/

A cold strip mill was in operation in 1952. The mill produced ribbon steel 90 mm wide, used for the manufacture of pen points, and strip steel for the production of razor blades. 123/

A bolt shop was in operation in 1935. In July 1951 it was announced that the so-called finished bolts formerly were produced on lathes but at that time were produced on a cold-heading machine. 124/

The steel cable shop was in operation in 1935. 125/

h. Intraplant Services.

The plant has its own experimental research laboratory which conducts research on problems in the production of steel wire and strip steel. 126/

i. Products and Production.

The Leningrad Steel Rolling, Wire, and Cable Plant produces bars, rods, sheet, strip, wire, cable, bolts, and springs. 127/

There is no firm information available on which to base an estimate of production in 1954. It is possible that production in 1954 was between 75,000 and 100,000 tons. 128/ Production of finished steel at the Leningrad Steel Rolling, Wire, and Cable Plant imeni V.M. Molotov in 1954 is shown in the tabulation below.

Thousand Metric Tons	
Rolled Steel	Total Finished Steel
100.0	100.0

j. Distribution of Products.

Several items have appeared in the press on the destination of plant products.

In August 1950, rolled steel, steel cables, and spring steel were being shipped to the Volga River power plants and to the Main Turkmen Canal.

In May 1951, wire rope was being shipped to the Kuybyshev Hydroelectric Power Plant.

In April 1952 an order for 27 tons of steel cable was completed for the Volga-Don Canal.

In May 1952, strip steel was shipped for the construction of the Leningrad subway.

In July 1952, hair springs for watches were shipped to watch manufacturers at Moscow, Penza, and Zlatoust. 129/

k. Administration.

The plant operates under the direction of the Ministry of Ferrous Metallurgy. 130/

l. Administrative Personnel.

The director of the plant is Ivan Iosifovich Saf'yants (Saf' yan). 131/

11. Onega Machine Building Plant (IR 7011001).

a. Location.

61°48' N - 34°22' E, Petrozavodsk, Karelo-Finnish SSR.

b. History and Development.

Before 1917 this plant was the Aleksandrovsky Armament Works. During 1917-18, ship and locomotive repairs were carried on, and agricultural and other machines were produced. In 1934, diesel and steam marine engines were manufactured. In 1935, equipment was produced for the timber industry. During 1937, electric saws and electrical tractor equipment were produced. The plant was destroyed during the war, and reconstruction was practically completed by 1947. The reconstruction included the installation of modern machine tools. Following reconstruction, trailers, hoisting machinery, and internal combustion engines were manufactured for the timber industry and graders and other machinery for road building. 132/

c. Raw Materials and Other Inputs.

Thin sheet steel is supplied by the Zaporozhstal works, and electrical equipment comes from Khar'kov. Pig iron is shipped in by rail from unknown sources. Coal for the power plant is received from the Donets Basin. 133/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

There is one cupola for the production of gray iron for castings. 134/

f. Steelmaking Facilities.

In 1936 there was an open-hearth furnace with a hearth area of 14.2 sq m. It is assumed that if this furnace was destroyed along with the plant it was rebuilt to the same size and capacity. In 1949,

alloy steels were being produced in the open-hearth furnace. 135/ Production of steel at the Onega Machine Building Plant in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Hearth Area (Square Meters)	Coefficient	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Open-hearth	14.2	5.2 a/	325	24.0 b/

a. The coefficient is assumed to have been 5 in 1953 and to have increased to 5.2 in 1954, based on the national open-hearth coefficient.
b. 14.2 x 5.2 x 325 = 24.0

g. Finishing Facilities.

In the rolling mill, there is one 700-mm 2-high, 2-stand, reversing bar mill. 136/

The steel foundry for the production of castings is equipped with the usual facilities for cleaning and finishing. 137/

In the machine building-shop, machine tools necessary for the finishing of parts and the assembly of machines for road building and other purposes are installed. 138/

h. Intraplant Services.

Power is supplied by a thermal electric power plant of 5,000- to 1,000-kw capacity. 139/

i. Products and Production.

Open-hearth steel production amounts to 73.8 tons per day. Since no tonnage figures are available, it is assumed that the steel production is divided evenly between ingots and castings. The ingots

are subsequently rolled into bars. Part of the castings is used in the manufacture of steam engines, generator gas, motor locomotives, road-building machines, and war materiel. Castings are also made for railroad construction. 140/ Production of finished steel at the Onega Machine Building Plant in 1954 is shown in the tabulation below.

Thousand Metric Tons

Steel Castings	Rolled Steel	Total Finished Steel
6.6 a/	8.6 b/	15.2

a. Finished castings are estimated to be 55 percent of tonnage cast.
b. Finished rolled steel is estimated to be 72 percent of ingot weight.

j. Distribution of Products.

Castings and bar steel are used within the plant in the manufacture of finished machines. Parts for railroad construction are supplied to a railroad shop in Kirov. 141/

k. Plant Efficiency.

Plant efficiency is reflected by postwar production of machines in percentage figures compared with 1946 production:

Year	Percent
1946	100
1947	262
1948	448
1949	665

Further indications of efficiency might be drawn from experiments for melting iron by blowing oxygen-enriched air into the cupola. 142/

l. Administration.

The plant is subordinate to the Ministry of the Lumber and Paper Industry. 143/

m. Personnel.

The plant director in 1947 was M.D. Filippov. 144/

12. Vyartsila Steel Plant (IR 9013163).

a. Location.

60°12' N - 30°42' E, Vyartsila, Karelo-Finnish SSR.

b. History and Development.

In 1947 the Vyartsila Steel Plant was restored to produce narrow-gage railroad rails and various steels. 145/

c. Steelmaking Facilities.

There is one open-hearth furnace which has a hearth area of 15 sq m. Its coefficient of utilization is 5.8 tons per sq m of hearth area. 146/ Production of steel at the Vyartsila Steel Plant in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Hearth Area (Square Meters)	Coefficient	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Open-hearth	15.0	5.8	325	28.0 a/

a. 15 x 5.8 x 325 = 28.0.

d. Finishing Facilities.

A rod mill of unknown description is operating in the rolling mill of the plant. 147/

e. Products and Production.

Narrow-gage railroad rails, rods, and wire are produced in unknown tonnages. 148/ Production of finished steel at the Vyartsila Steel Plant in 1954 is shown in the tabulation below.

Thousand Metric Tons

Steel Castings	Rolled Steel	Total Finished Steel
0	20.2 a/	20.2

a. Based on a 72-percent yield from ingots to rolled products.

f. Plant Efficiency.

In 1949 the plant fulfilled the first half-year plan by 124 percent. 149/

13. Cherepovets Metallurgical Plant (Proposed Steel Plant in Region I) (IR 7008404).

a. Location.

59°08' N - 37°54' E, Cherepovets, Vologda Oblast, RSFSR. Cherepovets is located approximately 450 km southeast of Leningrad on the railroad from Volkhov to Vologda. 150/

b. History and Development.

To supply Leningrad, a manufacturing center which uses approximately 10 percent of the finished steel produced in the USSR, plans were laid in 1946 and 1948 to build an integrated iron and steel plant at Cherepovets. This plant was expected to supply the Yaroslavl', Ivanovo, Moscow, Kalinin, and Gor'kiy areas as well as Leningrad.

Iron ore from the Kola Peninsula and coking coal from the Pechora Basin were to be used as the raw material base for this integrated plant. Because the ore base was 2,800 km from the coal source and because the steel consumption center, Leningrad, was 2,300 km from the Pechora Basin and 2,800 km from the Kola iron deposits, Cherepovets was selected as the site of the new plant to strike a balance between the costs of transporting the raw materials and the finished steel produced. 151/

To solve the transportation problems the Pechora Railroad and the line to the Kola ore field were to be transformed into first-class motor lines, including up-to-date rolling stock, modern signal systems, and electrification wherever possible. Waterways were to be used primarily for the transport of iron ore. 152/

Plans called for constructing the Cherepovets Metallurgical Plant in two stages. The first stage, which was to have been completed by 1950, was to provide a coke plant, 2 blast furnaces capable of producing 1.2 million tons of pig iron per year, an open-hearth shop capable of producing 2 million tons of steel per year, and rolling mills capable of producing 1.9 million tons of finished steel per year. 153/ The second stage of development, scheduled for completion by 1960, was to have increased the total annual capacity of the plant to between 4 million and 4.5 million tons of pig iron and to between 6 million and 6.5 million tons of steel ingots and steel for castings. 154/

c. Status of Development.

There has been no information on the progress of construction of this plant. In fact, it is not known whether or not construction has begun. Information on the status of construction of the Novo-Traitsk Steel Plant, planned at the same time as the Cherepovets plant,

has been lacking until recently, when a Soviet newspaper announced that 1 blast furnace and 3 open-hearth furnaces were in operation. 155/ Similarly, it is possible that some progress has been made at the Cherepovets plant.

14. Gomel' Sheet Rolling Mill (IR 2023885).

a. Location.

52°25' N - 31°00' E, Gomel' Oblast, Belorussian SSR.

b. History and Development.

This plant was put into operation in 1950 as a sheet rolling mill. 156/

c. Steelmaking Facilities.

None.

d. Finishing Facilities.

There is a sheet mill which rolls sheet bars supplied by unknown sources. 157/

e. Products and Production.

Based on the fact that similar mills located in other plants have a capacity of 15,000 tons per year, it is estimated that 1954 production was 15,000 tons of sheet steel. 158/ Production of finished steel at the Gomel' Sheet Rolling Mill in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
0	15.0	15.0

f. Distribution of Products.

In 1952, steel sheets were shipped to Minsk, Gomel', Bobrunsk, and Mogilev. 159/

g. Administration.

At the time operations were started in 1950 the plant was under Bel-Prom-Sov (Belorussian Industrial Council). 160/

15. Minsk Motor Vehicle Plant (IR 7009887).

a. Location.

53°55' N - 27°35' E, Minsk, Minsk Oblast, Belorussian SSR. The plant is located about 5 km southeast of the center of Minsk.

b. History and Development.

Started before World War II, the Minsk plant was damaged extensively in the fighting. Repair of existing facilities was completed by 1946, when construction of new sections of the plant began. Included in the new facilities are a large gray-iron foundry, a malleable-iron foundry, a steel foundry, and a nonferrous metals foundry. By 1950 the 3 large cupolas for gray iron were in operation as was 1 red brass furnace, 2 aluminum furnaces, and the malleable-iron cupola. The steel foundry was scheduled to go into operation in 1952. 161/

Production of the first trucks began in late 1947. The Minsk plant is the only producer of large 25-ton trucks in the USSR. The motor vehicle plant appears to be one of the most important truck-producing plants in the USSR. 162/

c. Ironmaking Facilities.

There are 3 gray-iron cupolas in a foundry served by a 50-ton crane. For the production of malleable iron there is one cupola. 163/

d. Steelmaking Facilities.

There are probably 2 electric furnaces in the steel foundry, each of about 1.5-ton capacity. 164/ Production of steel at the Minsk Motor Vehicle Plant in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Heats per Day	Operating Days per Year	Total Production (Thousand Metric Tons)
2	Electric	1.5	N.A.	325	3.0

e. Finishing Facilities.

There are no rolling mills at the plant. All of the foundries have facilities for finishing castings. There are also a number of 100-ton presses and one 500-ton press. 165/

f. Intraplant Services.

Power is supplied by a 10,000-kw thermal power station located within the plant. 166/

g. Products and Production.

The only steel product produced from the electric furnaces at the plant is steel castings. Production of finished steel at the Minsk Motor Vehicle Plant in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
1.7	0	1.7 a/

a. Based on a casting yield of 55 percent.

h. Distribution.

All castings are consumed at the plant in automotive equipment production.

i. Plant Efficiency.

In 1952 the plan for the first 11 months was fulfilled in 9 months. 167/

j. Administration.

The plant is subordinate to the Ministry of Machine Building.

k. Personnel.

The total number of employees is believed to be about 5,000. 168/

The plant director is Vladimir Dmitriyevich Mayboroda.

16. Mogilev Metallurgical Plant (IR 2023885).

a. Location.

53°54' N - 30°21' E, Mogilev, Belorussian SSR. Located close to Mogilev station on the west railroad line.

b. History and Development.

The Mogilev Metallurgical Plant was destroyed during World War II. Rebuilding was started following liberation, and by 1946 the plant was in partial production. In 1948 it is reported to have reached the prewar level of production. 169/

Reports indicate that the Mogilev plant was originally a pipe-casting plant, but it also produces rolled steel sheets. Since there are no steel-producing facilities, it is assumed that this is one of several plants that are established to roll steel sheets from sheet bar produced elsewhere.

c. Raw Materials and Other Inputs.

Sheet bars, coke for the cupola operation, and coal for heating are supplied by rail from unknown sources. 170/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

Two cupolas of unknown capacity are operated to produce gray iron for castings. 171/

f. Finishing Facilities.

There are 2 small sheet mills with a combined capacity estimated at 15,000 tons per year. 172/

g. Products and Production.

Rolled sheet steel production is 15,000 tons per year. Gray-iron castings are produced in unknown amounts. Production of finished steel at the Mogilev Metallurgical Plant in 1954 is shown in the tabulation below.

	Thousand Metric Tons	
Steel Castings	Rolled Steel	Total Finished Steel
0	15.0	15.0

17. Ilmarine Machine Building Factory (IR 7041031).

a. Location.

59°26' N - 24°44' E, Tallin, Estonian SSR. Located on the north-east outskirts of Tallin.

b. History and Development.

The plant was destroyed during World War II and reconstructed in 1946. 173/

c. Ironmaking Facilities.

Two small cupolas of 2-ton capacity each provide iron for conversion to steel in the Bessemer converters and for gray-iron castings. 174/

d. Steelmaking Facilities.

One Bessemer converter of 1.5- to 2.0-ton capacity is the only steelmaking equipment in the plant. 175/ Production of steel at the Ilmarine Machine Building Factory in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Heats per Day	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Bessemer converter	1.5 to 2.0	N.A.	325	5.0

e. Finishing Facilities.

There are no steel rolling mills. The foundries have facilities for pouring and finishing iron and steel castings.

f. Products and Production.

Gray-iron and carbon and alloy steel castings are produced. 176/ Production of finished steel at the Ilmarine Machine Building Factory in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
2.8 a/	0	2.8

a. Based on a casting yield of 55 percent of steel poured in castings.

g. Distribution of Products.

Most of the castings are consumed within the plant in manufacturing power machines for peat cutting, oil-shale mining, and the oil industry. 177/

18. Tallin Machine Building Factory, formerly known as Franz Krull Machine Building Factory (IR 7022682).

a. Location.

59°26' N - 24°44' E, Tallin, Estonian SSR. Situated in northwest part of Tallin, 2.4 km from the main railroad station.

b. History and Development.

Founded in 1912 the plant was severely damaged during World War II and reconstructed by 1946. 178/

c. Coking Facilities.

None.

d. Ironmaking Facilities.

Cupolas are operated for the production of gray-iron castings. 179/

e. Steelmaking Facilities.

One 2-ton electric furnace produces 2,000 tons of carbon and alloy steel per year. 180/

f. Finishing Facilities.

In the rolling mill, steel plate up to 25 mm in thickness is rolled. The forge shop is equipped with 4 large air hammers of unknown capacity and 3 German and 2 British hammers of 10-ton capacity each. Heating furnaces are available for forging, annealing, and hardening operations. 181/ Production of steel at the Tallin Machine Building Factory in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Electric	2.0	325	2.0

g. Products and Production.

The production of steel plate and forgings is used in manufacturing steam boilers, agricultural machines, and equipment for oil-shale processing. 182/ Production of finished steel at the Tallin Machine Building Factory in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Forged and Rolled Steel	Total Finished Steel
0	1.4 a/	1.4

a. Based on a yield of 70 percent of ingots to finished steel.

h. Administration.

In 1944 this plant was subordinate to the Ministry of Heavy Industry, Moscow. 183/

i. Personnel.

The plant manager in 1947 was Krylov. 184/

19. Riga Railroad Car Works, formerly known as the Phoenix Vairogs Railroad Equipment Plant (IR 7019091).

a. Location.

56°57' N - 24°09' E, Riga, Latvian SSR.

b. History and Development.

The plant was built before World War II. About 40 percent of the installation was destroyed or damaged by the war. By 1950, restoration was complete, and some new construction was under way. A small producer of streetcars and railroad cars, the plant will become increasingly important in this segment of the economy as production is stepped up. 185/

c. Raw Materials and Other Inputs.

Pig iron in 30-kg sizes is shipped to the plant at the rate of 40 tons per day. Pig iron received at the car works for the open-hearth furnace and cupola amounts to 15,000 tons per year. The remainder of the metallic input needed for steel and cast iron production is derived from local scrap supplies. 186/

Coke for cupola operation is received by rail. 187/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

There are no blast furnaces at Riga, but the car works has a 4-ton cupola for making gray cast iron. 188/

f. Steelmaking Facilities.

For the production of steel castings the car plant has one 35-ton oil-fired open-hearth furnace. 189/ Production of steel at the Riga Railroad Car Works in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Heats per Day	Operating Days per Year	Total Production (Thousand Metric Tons)
1	Open-hearth	35	3	315 a/	34.1 b/

a. The number 315 is used instead of 325 to allow for the more intermittent operation in a steel foundry of this type.
b. Based on a 3-percent increase in the national open-hearth coefficient in 1954.

g. Finishing Facilities.

There are no rolling mills. Facilities do exist for the cleaning and preparation of castings for use in the car assembly area. Some forging and stamping facilities also exist at the works. 190/

h. Intraplant Services.

Power is supplied from the city of Riga. The plant has numerous auxiliary shops enabling the works to repair its own facilities and fabricate some new equipment when needed. 191/

i. Products and Production.

The principal products of the car works are railroad passenger cars, self-propelled railroad coaches, railroad coaches for use in electrified systems, and streetcars. Ferrous metal production is limited to iron and steel castings. 192/ Production of finished steel at the Riga Railroad Car Works in 1954 is shown in the tabulation below.

Thousand Metric Tons		
Steel Castings	Rolled Steel	Total Finished Steel
18.8	0	18.8 a/

a. Based on a casting yield of 55 percent.

j. Distribution.

Most of the iron and steel castings produced are consumed at the car works, but some steel castings are shipped to other consumers. 193/

k. Plant Efficiency.

In April 1947 the plant was awarded a premium for efficiency. 194/

l. Administration.

In 1947 the plant was subordinate to the Ministry of Transport Machine Building. 195/

20. Sarkana Metallurgical Plant, also known as Krasnyy Metallurg (IR 9001382).

a. Location.

56°35' N - 21°00' E, Lepaya, Latvian SSR. The plant is located east of the main railroad station between the railroad area and the road to Brobina and Riga.

b. History and Development.

This plant was partially destroyed by the Germans in 1941-42. Reconstruction was started early in 1945, and by November 1945 one open-hearth furnace began to produce. The second open-hearth furnace was reactivated in May 1946. The entire cost of reconstruction was 30 million rubles. It was planned to construct a sheet rolling mill to produce 5,000 tons of roofing sheet per year, to construct a third open-hearth furnace, and to modernize the existing furnaces. The rolling mill and wire mill were to be enlarged.

c. Raw Materials and Other Inputs.

Scrap iron is supplied by local sources. Pig iron, limestone, and manganese are received from unknown sources. Coal for heating and coke for the cupola are supplied from East Germany and Poland. Six to seven carloads of coal are supplied by East Germany daily. There are no stockpiles; materials arrive only for immediate requirements. 196/

d. Coking Facilities.

None.

e. Ironmaking Facilities.

One cupola, 1.4 meters in diameter, is operated 2 or 3 times per week. 197/

f. Steelmaking Facilities.

There are 2 open-hearth furnaces of 30-ton capacity each. Melts are completed in 8 hours, thus providing 180 tons of steel per day. Average composition of the charges is 70 percent scrap and 30 percent pig iron. 198/ Production of steel at the Sarkana Metallurgical Plant in 1954 is shown in the tabulation below.

Number of Furnaces	Type	Capacity (Metric Tons)	Heats per Day	Operating Days per Year	Total Production (Thousand Metric Tons)
2	Open-hearth	30	3	325	60.3 a/

a. Based on a 3-percent increase in the national open-hearth coefficient in 1954.

g. Finishing Facilities.

A bar mill produces billets, angles, channels, flat and round bars, and sometimes sheet steel directly from ingots. 199/

The wire-drawing and nail shop is equipped with 3 wire-drawing spindles, 3 annealing furnaces, and 6 nail machines. 200/

In the chain forge shop the equipment for producing chains includes 15 chain machines for wire, 6 mm in diameter; 5 chain machines for wire, 3 to 4 mm in diameter; 6 automatic welding machines; and 6 to 8 standard welding machines. 201/

For manufacturing spades, forks, and other agricultural tools, the spade and fork forge was equipped with 3 medium steam hammers, 1 pneumatic hammer, 1 forging press, 6 drop hammers, 3 spring hammers, and 2 punch presses. 202/

In the steel foundry 10 percent of steel production is made into castings. There are the usual facilities for cleaning and finishing castings.

In the iron foundry the cupola iron is used to produce ingot molds and castings. 203/

h. Intraplant Services.

Electric power for plant operation is supplied from Lepaya.

A mechanical workshop exists for shop maintenance. A narrow-gage railroad system is provided for intraplant transportation. A railroad siding and spurs link the plant with the Lepaya and Riga railroad. 204/

i. Products and Production.

In 1946 the plant produced 24,000 tons of steel and 21,000 tons of rolled products, and production of 58,000 tons of steel and 40,000 tons of rolled products was planned for 1950. Currently, open-hearth steel production is 180 tons per day, and 90 percent of this production goes into ingots which are subsequently rolled into flat and round bars, wire, and steel sheets. Some of the wire is further processed into chains and nails. Part of the bar stock is forged into spades, forks, and other agricultural tools. The tonnage of rolled and cast products in 1949 was as follows 205/:

	Metric Tons
Round and flat bars	22,750
Wire	13,000
Sheet steel	3,300
Castings	3,300
Iron castings	N.A.

Production of finished steel at the Sarkana Metallurgical Plant in 1954 is shown in the tabulation below.

Thousand Metric Tons					
Steel Castings	Rolled Steel	Bars	Wire	Sheet Steel	Total Finished Steel
3.3 a/	39.1 b/	22.8	13.0	3.3	42.4

a. Ten percent of production (60.3 tons) at a 55-percent yield of finished castings.
b. Ninety percent of steel production at a yield of 72 percent from ingot to rolled product.

j. Distribution of Products.

Most of the finished products are sent by rail to Riga for storage or distribution.

Rolled sheets were shipped to "Elektrosila" in Leningrad and to "Darba Spars," in Riga. 206/

k. Administration.

The factory belongs to the Latvian Ministry of Local Industry, but the shops containing open-hearth furnaces and rolling mills are subordinate to a ministry in Moscow believed to be the Ministry of Ferrous Metallurgy. 207/

l. Personnel.

There are about 1,800 employees distributed as follows:

Shop	Shifts Worked	Employees per Shift	Total
Martin furnace	3	150	450
Rod mill) Rolling mill)	3	200	600
Tin shop) Nail shop)	3	25	75
Wire drawing	3	30	90
Balance of factory	1	585	585 208/
Total			1,800

Petr Zuaygzne was the plant director in 1950. 209/

APPENDIX A

PLANT SUMMARY TABLES

I. Region I.

Table 2

Production and Capacity of the Bolshevik Armament Plant No. 232
1954

	Thousand Metric Tons	Kilowatts
Metallurgical coke production	0	
Pig iron production	0	
Steel production		
Four open-hearth furnaces	187.0	
Rolling and finishing capacity		
Medium rail-structural mill	N.A.	
Plate mill	N.A.	
Bar mill	N.A.	
Steel foundry	10.3	
Finished steel production		
Castings	10.3	
Rolled	117.0	
Power plant capacity		12,000

Table 3

Production and Capacity of the Izhorsk Heavy Equipment Plant imeni Kuybyshev
1954

	Thousand Metric Tons	Kilowatts
Metallurgical coke production	0	
Pig iron production	0	
Steel production		
Ten open-hearth furnaces and one electric furnace	470.0	
Rolling and finishing capacity		
Blooming mill (universal), 1,200-mm	N.A.	
Blooming mill, 900-mm diameter rolls	N.A.	
Billet mill, 750-mm diameter rolls	N.A.	
Plate mill, 1,600-mm diameter rolls	N.A.	
Bar mill, 530-mm diameter rolls	N.A.	
Bar mill, 350-mm diameter rolls	N.A.	
Two Stiefel pipe mills	N.A.	
Two Pilger pipe mills	N.A.	
Two Mannesman seamless pipe mills	N.A.	
Finished steel production		
Castings	0	
Rolled	329.0	
Power plant capacity		N.A.

Table 4

Production and Capacity of the Leningrad Heavy Machinery Plant No. 1 imeni Kirov
1954

	Thousand Metric Tons	Kilowatts
Metallurgical coke production	0	
Pig iron production	0	
Steel production		
Six open-hearth furnaces		
Three electric furnaces	308.0	
Rolling and finishing capacity		
Blooming mill, 800-mm diameter rolls	N.A.	
Bar mill, 760-mm diameter rolls	N.A.	
Medium bar mill, 500-mm diameter rolls	N.A.	
Three small bar mills	N.A.	
Plate mill	N.A.	
Sheet mill	N.A.	
Steel foundry	84.7	
Two iron foundries	N.A.	
Two forge shops	N.A.	
Press shop	N.A.	
Finished steel production		
Castings	84.7	
Rolled	110.9	
Power plant capacity		N.A.

Table 5

Production and Capacity of the Leningrad Machine Building Plant imeni V.M. Molotov
1954

	Thousand Metric Tons	Kilowatts
Metallurgical coke production	0	
Pig iron production	0	
Steel production		
Four electric furnaces	10.0	
Rolling and finishing capacity		
Rolling mills	0	
Steel foundry	5.5	
Finished steel production		
Castings	5.5	
Rolled	0	
Power plant capacity		N.A.

Table 6

Production and Capacity
of the Leningrad Hoist and Conveyor Equipment Plant
imeni S.M. Kirov
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
Two electric furnaces	8.0
Rolling and finishing capacity	
Rolling mills	0
Steel foundry	4.5
Finished steel production	
Castings	4.5
Rolled	0

Table 7

Production and Capacity
of the Ekonomayzer Foundry and Machine Building Plant
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
Two Bessemer converters	14.6
Rolling and finishing capacity	
Rolling mills	0
Steel foundry	8.0
Iron foundry	10.0
Finished steel production	
Castings	8.0
Rolled	0

Table 8

Production and Capacity of the Nevskiy Machine Building Plant imeni Lenin
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
Three open-hearth furnaces	
Three electric furnaces	79.0
Rolling and finishing capacity	
Rolling mills	0
Steel foundry	43.5
Finished steel production	
Castings	43.5
Rolled	0

Table 9

Production and Capacity of the Leningrad Metal Combine
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	0
Rolling and finishing capacity	
Four small sheet mills	33.0
Finished steel production	
Castings	0
Rolled	33.0

Table 10

Production and Capacity of the Leningrad Pipe Mill
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	0
Rolling and finishing capacity	
Four pipe welding installations	90.0
Finished steel production	
Castings	0
Rolled	90.0

Table 11

Production and Capacity
of the Leningrad Steel Rolling, Wire, and Cable Plant
imeni V.M. Molotov
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	0
Rolling and finishing capacity	
Bar mill, 515-mm diameter rolls	N.A.
Five cold rolling mills	N.A.
Sheet mill	N.A.
Strip mill	N.A.
Bolt presses	N.A.
Steel cable shop	N.A.
Finished steel production	
Castings	N.A.
Rolled	100.0

Table 12

Production and Capacity of the Onega Machine Building Plant
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
One open-hearth furnace	24.0
Rolling and finishing capacity	
Bar mill, 700-mm diameter rolls	8.6
Steel foundry	6.6
Finished steel production	
Castings	6.6
Rolled	8.6

Table 13

Production and Capacity of the Vyartsila Steel Plant
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	28.0
Rolling and finishing capacity	
Rolling mills	20.2
Steel foundry	0
Finished steel products	
Rolled	20.2
Castings	0

II. Region II.

Table 14

Production and Capacity of the Gomel' Sheet Rolling Mill
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	0
Rolling and finishing capacity	
Rolling mills	
Sheet mills	15.0
Finished steel products	
Rolled	15.0
Castings	0

Table 15

Production and Capacity of the Minsk Motor Vehicle Plant
1954

	Thousand Metric Tons	Kilowatts
Metallurgical coke production	0	
Pig iron production	0	
Steel production		
Two electric furnaces	3.0	
Rolling and finishing capacity		
Rolling mills	0	
Steel foundry	1.7	
Finished steel products		
Rolled	0	
Castings	1.7	
Power plant capacity		10,000

Table 16

Production and Capacity of the Mogilev Metallurgical Plant
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	0
Rolling and finishing capacity	
Rolling mills	
Sheet mills	15.0
Finished steel products	
Rolled	15.0
Castings	0

Table 17

Production and Capacity of the Ilmarine Machine Building Factory
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
One Bessemer converter	5.0
Rolling and finishing capacity	
Rolling mills	0
Steel foundry	2.8
Finished steel products	
Castings	2.8
Rolled	0

APPENDIX C

GAPS IN INTELLIGENCE

Recent information on production, capacity, and construction of steelmaking facilities of most plants in Regions I and II is lacking.

One of the most critical gaps is the complete lack of intelligence on the development of the Cherepovets Metallurgical Plant. Since the plans were announced in 1946 and 1948, no further information has been received.

Other plants in Regions I and II on which there are no confirming reports on size, production, or capacity are:

Region I

Baltisky Shipyard, Leningrad, Leningrad Oblast, RSFSR.
Leningrad "MOPR" Steel Plant, Leningrad, Leningrad Oblast, RSFSR.
Russian Diesel Plant, Leningrad, Leningrad Oblast, RSFSR.

Region II

Kimberg Wire and Nail Plant, Tallin, Estonian SSR.
Stalin Machine Building Plant, Tallin, Estonian SSR.

Table 18

Production and Capacity of the Tallin Machine Building Factory
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
Two electric furnaces	2.0
Rolling and finishing capacity	
Rolling mills	0
One sheet mill	0
Forge	0
Finished steel products	
Rolled and forged	1.4
Castings	0

Table 19

Production and Capacity of the Riga Railroad Car Works
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	34.1
One open-hearth furnace	0
Rolling and finishing capacity	
Rolling mills	0
Steel foundry	18.8
Finished steel products	
Rolled	0
Castings	18.8

Table 20

Production and Capacity of the Sarkana Metallurgical Plant
1954

	Thousand Metric Tons
Metallurgical coke production	0
Pig iron production	0
Steel production	
Two open-hearth furnaces	60.3
Rolling and finishing capacity	
Rolling mill	N.A.
Bar mill	N.A.
Three wire-drawing stands	
Chain forge	N.A.
Spade and fork forge	N.A.
Steel foundry	3.3
Finished steel products	
Rolled	39.1
Castings	3.3

APPENDIX B

METHODOLOGY

Methods used to derive the production estimates shown in the various tables are described in the footnotes to the tabulations.

APPENDIX D

SOURCE REFERENCES

The intelligence reports covering the plants in Regions I and II in most instances contain outdated information of the 1940 and 1950 periods. Details of production tonnages and capacities of producing units are not available.

In general, prisoner-of-war reports are inaccurate and misleading. Frequently the source has not been in a position to obtain firsthand information but contributes details given him by others.

Newspapers and periodicals too often quote figures in percentages which are impressive but which do not reveal facts. When production tonnages or capacities are given, they are considered reliable.

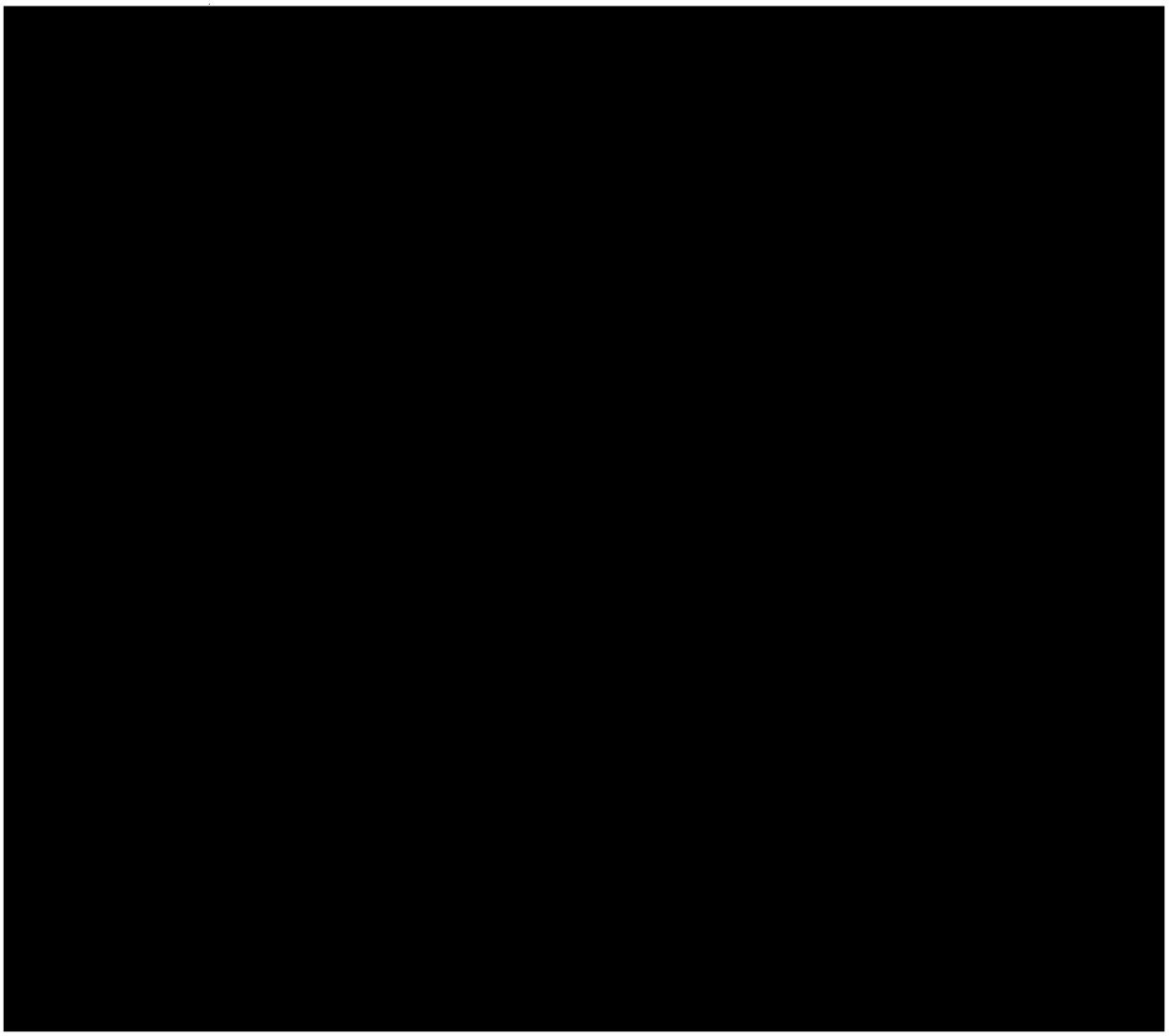
Evaluations, following the classification entry and designated "Eval.," have the following significance:

Source of Information	Information
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

25X1A



25X1A

Next 7 Page(s) In Document Exempt

Approved For Release 1999/09/02 : CIA-RDP79-01093A000900120007-0

114. [redacted]
25X1A

25X1A2g 115. [redacted] (tr of Leningradskaya pravda, 22 Oct 49, U)
Leningradskaya pravda, 4 Jun 52, U. Eval. RR 2.

116. [redacted]
25X1A

117. [redacted]

118. [redacted]

119. [redacted]

120. Gudok, 1 May 51, U. Eval. RR 2.

121. Plan puska novkh predpriyatiy v 1935 g. Moscow, 1935, U. Eval. RR 2.
Zerininov, op. cit. (47, above).

25X1A

122. [redacted]

123. Turkmenskaya iskra, 17 Dec 46, R. Eval. RR 2.
Leningradskaya pravda, 13 Jan 52, U. Eval. RR 2.
Ibid., 1 May 52, U. Eval. RR 2.

124. Zerininov, op. cit. (47, above).
Leningradskaya pravda, 28 Jul 51, C. Eval. RR 2.

125. Zerininov, op. cit. (47, above).

126. Stal', Feb 48, U. Eval. RR 2.

127. Leningradskaya pravda, 23 Mar 51, U. Eval. RR 2.
Ibid., 13 Jan 52, U. Eval. RR 2.
Ibid., 1 May 52, U. Eval. RR 2.
Stal', Feb 48, U. Eval. RR 2.

128. Plan puska novykh predpriyatiy v 1935 g. Moscow, 1935, U. Eval. RR 2.

129. Gudok, 1 May 51, U. Eval. RR 2.
Trud, 30 Aug 50, U. Eval. RR 2.
Leningradskaya pravda, 2 Jul 52, U. Eval. RR 2.

Next 3 Page(s) In Document Exempt

Approved For Release 1999/09/02 : CIA-RDP79-01093A000900120007-0

SECRET

NOT RELEASABLE TO
FOREIGN NATIONALS

CONFIDENTIAL

CONFIDENTIAL

NOT RELEASABLE TO
FOREIGN NATIONALS

SECRET

Approved For Release 1999/09/02 : CIA-RDP79-01093A000900120007-0